VACAVILLE, CALIFORNIA November 2016

## THE VVRC WELCOMES YOU

**The Vaca Valley Radio Club has proudly served the Northern Solano County Area since 1988. We pride ourselves in providing a friendly place for radio amateurs to meet and improve their operating skills.**

**We participate in public service events throughout the year and are always ready to assist with communications during times of emergency.**

**Browse our website for more information about our club. If you have any questions please e-mail us at w6vvr@w6vvr.net or call 707-448-5665 for assistance**

**The Repeater is Published by the Vaca Valley Radio Club, PO Box 143, Elmira, CA 95625-0143, An ARRL Affiliated Club. Founded 1987, Chartered 1988. General Meetings: 2ndThursday of each month at 7:00 PM See map on last page.**

**Wheelchair accessible**

## Visit the Repeater online courtesy of Bob K6HEW at: w6vvr

**Club repeater in Vacaville:w6vvr.net 145.470 MHz(-) pl 127.3**

**The W6VVR net call is Tuesday evenings at 8pm on the club repeater. All are invited to participate in this weekly meeting on the air. 73!**

**Additional local repeater**
**WV6F 440.025(+)**

## 2017 Officers

**President: Frank Garay KJ6RWQ**
**VP:Doug Hollowell KJ6VHE**
**Treasurer: Bob Hewitt-K6HEW**
**Secretary: Brian Hagen-KK6BXP**

**Board of Directors:**
**Ruffner Gunn KD6DME**
**Arthur Miller K6UX**
**Kevin Stow N6VLF**
**Bob Hawkins KM6BXZ**

**APPOINTED POSITIONS**
**VVRC Net Control Chairperson**
**Club Activities Chairperson-Frank Garay-KJ6RWQ**
**Newsletter Editor-Jerry Bowen, KJ6SCC**
**Newsletter Publishe/ Distributor-Bob Hewitt, K6HEW**

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# President's Message

Well, another year has slipped past and at the start of the 2017 year, a new club president will take the reins from me and move the club forward. My apologies to those members and guests at the November club meeting for "not getting your money's worth" with my presentation on the digital modes. Honestly, I've only used the laptop in the distant past when the club met at the Vacaville Fire Protection District HQ building on Vine Street for which that presentation was on the NVIS system. I recently purchased a some cable adapters and my plan is to test out the laptop with these new cable adapters using that 60" flat screen at our airport meeting room. If the "test" goes well, then I'll not only learn from the "test", but will likely re-present my original failed presentation in January. As for those hams who asking for the CD, it will be forthcoming just after the first of the month – that being December 2016. At my workplace, our engineer staffing is down 5 men easily and so the other 6 have to pick up the slack which results in quite a bit of OT which explains why that promised CD hasn't gotten out yet.

In the coming 2017 new year, I'd like to see this club put together a contesting team and participate in the yearly radio contests that are either sponsored by the ARRL or other amateur radio organizations. No, it's not like being a "rocket scientist", but it's mainly just good fun in trying to work as many stations as possible. The multi ops could be out in the field or at building using multiple radios. Digital such as RTTY and PSK31 would be included. And for those members who don't have an HF rig, accommodations could be put together so you could participate. I know a lot of you new operators have figured out that this hobby is expensive. It can be to an extent, but at the same time, it doesn't have to be. There is absolutely nothing wrong in buying a used radio, but for me, I draw the line at such items like antennas or power supplies or ?. That's just me. Every one of my radios were bought as used with only my Yaesu FT-8800R as being the only new radio. And my "newest" rig is a FT-950 which was recently bought as a used radio. It's only 6 years old and in great condition!

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Maybe sometime in 2017 I'll give a decent presentation on how to use software to program one's radio and the pros & cons is using the software. Maybe some of you have such software or maybe just having the software is on your Santa Claus list perhaps?

OK, that's all I have for the time being. As much as I would like to attend the upcoming Merriment On Main event, I can't because I'm working a double

**7 3 Marcus Maclean, KI6WDX**

# VVRC NOV 2016 MEETING NOTES:

Our final official meeting is done without recounts, hanging chads or other voting irregularities including last minute challenges and recounts. Merriment on Main has come and gone (my feet are still cold)

## VVRC Christmas dinner

**December 8th at Pietro's #1 at 407 Cernon St. 18:30 local time. $25 a head including tip.**

**Make Sure to RSVP for head count to Frank KJ6RWQ as soon as possible if you have not already.**

## For 2017 our new officers are:

**President: Frank Garay KJ6RWQ**
**Vice President: Doug Hollowell KJ6VHE**
**Treasurer: Bob Hewitt K6HEW**
**Secretary: Brian Hagen KK6BXP**

## The Board:

**Ruffner Gunn KD6DME**
**Arthur Miller K6UXE**
**Kevin Stow N6VLF**
**Bob Hawkins KM6BXZ**

**All things internet: AKA the Facebook, google, social media guy: Jason Fiori KM6FAK**

As I look back on the year, I see a lot of positive changes, our new field day location at Nut Tree Airport, Farmers Market Vacaville, Growth of Club Members both new and returning from being absent for a bit. Of course there are our challenges,

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with a little elbow grease we can bring back the glimmer and shine.

As December approaches and we sit down for the last time together for the year at dinner, reflect on what is good about our club and plan to help to make it a better 2017 for VVRC.

Hear you on the Tuesday Net; See you December 8th; Looking forward to seeing you in January 2017

**Brian KK6BXP**

## Welcome to the Vaca Valley Radio Club Jason .

**Date:** Nov 11, 2016 2:49 PM
Welcome to the Vaca Valley Radio Club. The complete roster of all club members is in the members only section of the club's web site. The link to the club's web site is: http://w6vvr.net frequency) If you have any questions, please feel free to give me a call.

**Bob, K6HEW**

***DANG IT! Stop laughing and get me outa this!!!***

# Club Christmas Party

## Where:

**Pietro's No. 1407 Cernon st.Vacaville**

**When:December 8, 2016 @ 6:30 pm.**

## Cost:

**Including the mandatory gratuity and sales tax $25.00 per headCASH ONLY PLEASE!**

## All you can eat Menu:

**Garlic Bread.Salad with Dressing.**
**Penne Rigata with both meat sauce or marinara sauce.**
**Homemade Ravioli with both white and red sauce.**
**Pizza - Pepperoni, Cheese and their big combo.**
**Drinks**
**Water is provided. If you want anything else, you'll pay for that directly to the servers.We are in their back room which is really nice. You walk through the kitchen. When you get there, just ask where the Radio Club dinner is and they'll show you.It's a very nice place with great food!We'll see you there.**

**Frank GarayVVRCVP, KJ6RWQ**

***Well sweetheart, Maybe if we rattle a little at them they won't put up that antenna***

# Demonsration of Digital Radio Operations

After a couple minor hiccups Marcus Maclean, KI6WDX managed to put on an excellent demonstration of equipment, techniques and software for digital Ham Radio operation. When I arrived he was having trouble trying to tune up the antennas in the dark by himself with a flashlight clenched in his teeth. Not an easy thing to do! Then Brian, KK6BXP showed up to help and soon the antenna was ready.

After stringing the antenna cable into the meeting room Marcus quickly set the equipment for the demonstration.

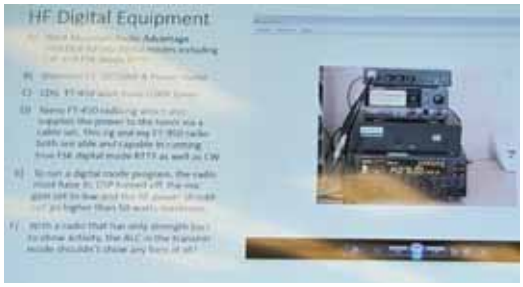
One more glitch popped up while using the meeting room screen. The slide didn't always show up in the right place. The problem was resolved and the demonstration continued, generating a lot of interest with the attending members and visitors.

*Marcus and Brian tuned up the Buddipole on 20 meters in the dark.*

*Marcus was finally able to relax after equipment set-up*

*Marcus' portable setup for Digital Operation was compact*

*The first slide recommended reading included ARRL Publications Get on the Air with HF Digital and Work the world with JT65 & Jt9*




*This slide included recommended equipment for Digital Operation.*

## THE BIT BUCKET

Google Glass users can play a game to learn Morse code. The game buzzes dots and dashes using the transducer built into the glasses. Though the game does not focus on the code, nor require memorization to play successfully, researchers found that just by playing the game, players passively learned the code well enough to subsequently send code at 98% accuracy. (Dennis, N6KI)

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Carl, K9LA, talks about how a solar minimum can be too deep, even for 160 meters, in a recent message to the TopBand reflector. "With a weak solar magnetic field, more galactic cosmic rays will be able to get into the Earth's atmosphere... Since galactic cosmic rays are mostly **very energetic** protons, they can get down to low atmospheric altitudes, causing collisional ionization in the D region (and lower E region). A cursory estimate using cosmic ray ionization rates confirms more ionization in the lower atmosphere. 160 meters is not very tolerant of more absorption, so we may see an adverse effect of the weakened solar magnetic field." (via TopBand reflector)

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NOAA has made available some tools to help with **regional** prediction of space weather events. The intent is to be able to warn utilities and space satellite companies ahead of events having the potential to disrupt their operations. The footprint of the regional forecasts is approximately 350 square miles, with a lead time of up to 45 minutes. Researchers from the University of Michigan and Rice University developed the tools necessary to make this possible.

## ARRL Needs You to Help With A Final Push for the Amateur Radio Parity Act in this Congress

Dear ARRL member, I am writing to you today because we are nearing the end of the 114th Congress and the efforts to obtain passage of *The Amateur Radio Parity Act* are at a critical juncture. With a few short weeks left to the year, we must get this bill passed **NOW** or we will need to start all over again come January 1, 2017.

As you know, thanks to your previous efforts, the legislative efforts scored a major victory in our campaign when *the Amateur Radio Parity Act*, H.R. 1301, passed in the House of Representatives on September 12th. The legislation is now in the Senate in two forms – as H.R. 1301 and alternately in the packaged bill S. 253.

We still need every Senator to approve the bill. You are one of over 730,000 licensed Amateur Radio Operators living in the United States. Many of you already live in deed-restricted communities, and that number grows daily. We asked you for your help in September - and you responded in great numbers. We collected over 63,000 emails that were distributed to every single U.S. Senator. That is amazing. However, with the election hiatus over, each and every Senator must be reminded that their business is not complete until this important legislation affecting hams is passed and sent to the President**. Even if you wrote in the past, we need you to write again!**

ONCE AGAIN I REMIND YOU THAT NOW IS THE TIME FOR ALL HAMS TO GET INVOLVED IN THE PROCESS! If you want to have effective outdoor antennas but are not currently allowed to do so by your Home Owner's Association, PLEASE SEND THESE EMAILS TODAY! If you don't live in a deed-restricted community but you care about the future of Amateur Radio, please support your avocation and your fellow hams and SEND THESE EMAILS TODAY! We need you to reach out one more time to your Senators TODAY! **Right away Right now!** Help us in the effort. Please go to this linked website and follow the prompts:https://arrl.rallycongress.net/ctas/urge-us-senate-to-pass-amateur-radio-parity-act

**Thank you. 73,Rick Roderick, K5UR ARRL - The national association for Amateur Radio ®**

## TECHNICAL TOPICS AND INFORMATION

RemoteQTH.com has announced an open-source hardware and software modular antenna switch. By combining modules in different ways, you can build up to a 12 x 4 antenna switch. Since the design documentation is provided, you can modify it to suit your needs.

If you're building amateur gear using Arduinos, Raspberry Pis, or Beaglebones, you may find a logic analyzer could help you examine digital timing relationships. Using SUMP2 from Black Mesa Labs with a $22 FPGA stick, you could be capturing 96 million samples per second (MSPS). It could be just the thing to debug your homebrew preamp sequencer. (*EE Times*)

Switching power supplies continue to improve in the watt-per-cubic inch metric as innovations are made in magnetics and semiconductors. As switching frequencies and semiconductor voltage ratings increase, we should see the benefit in smaller solid-state linear amplifiers. AM enthusiasts have enjoyed a renaissance through the use of Class E amplifier topologies along with these technology improvements. (Elektor)

Pasternack Enterprises has introduced a 2.4 GHz RADAR demonstration kit, with the intended use for training and classroom experimentation. The kit permits experiments with different modulation types, as well as experimenting with filtering. Courseware is provided for use in a teaching environment. In 2017, MIT has a 5-day build-your-own synthetic aperture radar course during which participants learn communications and RADAR theory, design and simulate various systems, and go home with a kit designed by MIT's Lincoln Laboratories. According to a past class description, "You do not have to be a RADAR engineer but it helps if you are interested in any of the following; electronics, amateur radio, physics, or electromagnetics." The 2.4 GHz amateur band is shared with unlicensed users.

There's a new BeagleBone shield that may find use in Skimmer-type operation: the KiwiSDR. Another use could be as a universal panadater - BeagleBone LCD screens are relatively inexpensive, and the open-source software for the KiwiSDR could be a good basis for the panadapter functionality of your dreams.

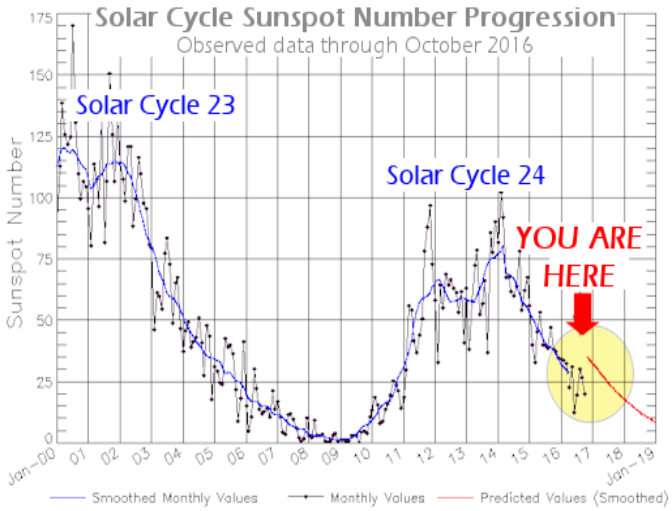
Researchers from Cambridge University describe some really low-power transistors that could enable devices that work for years without battery power. The transistors can scavenge power from their environment by taking advantage of characteristics, like leakage, that have previously been viewed as flaws.

*A QSL card to cherish*

*Another great DX QSL Card-Thanx Skip*

# SUNSPOT CYCLE AT LOWEST LEVEL IN 5 YEARS

The sun has looked remarkably blank lately, with few dark cores interrupting the featureless solar disk. This is a sign that Solar Minimum is coming. Indeed, sunspot counts have just reached their lowest level since 2011. With respect to the sunspot cycle, you are here:




The solar cycle is like a pendulum, swinging back and forth between periods of high and low sunspot number every 11 years. These data from NOAA show that the pendulum is swinging toward low sunspot numbers even faster than expected. (The red line is the forecast; black dots are actual measurements.). Given the current progression, forecasters expect the cycle to bottom out with a deep Solar Minimum in 2019-2020. Solar Minimum is widely misunderstood. Many people think it brings a period of dull quiet. In fact, space weather changes in interesting ways. For instance, as the extreme ultraviolet output of the sun decreases, the upper atmosphere of Earth cools and collapses. This allows space junk to accumulate around our planet. Also, the heliosphere shrinks, bringing interstellar space closer to Earth; galactic cosmic rays penetrate the inner solar system *and our atmosphere* with relative ease. (More on this below.) Meanwhile, geomagnetic storms and auroras will continue—caused mainly by solar wind streams instead of CMEs. Indeed, Solar Minimum is coming, but it won't be dull.

**COSMIC RAYS CONTINUE TO INTENSIFY:**

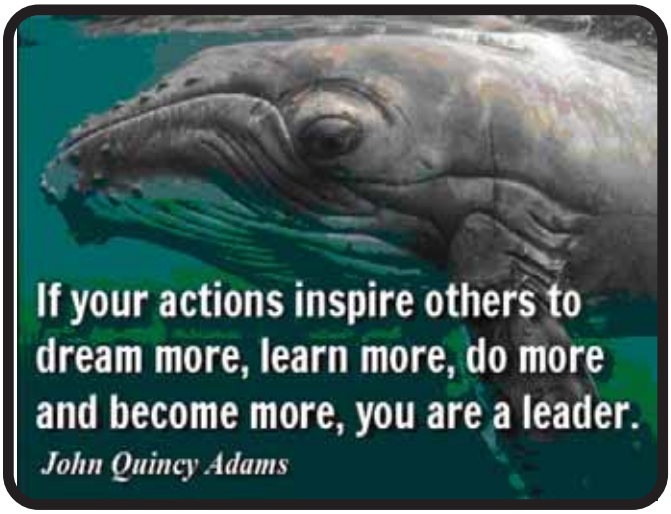
As the sunspot cycle declines, we expect cosmic rays to increase. Is this actually happening? The answer is "yes." Spaceweather.com and the students of Earth to Sky Calculus have been monitoring radiation levels in the stratosphere with frequent high-altitude balloon flights over California. Here are the latest results, current as of Nov. 11, 2016:

Data show that cosmic ray levels are intensifying with an 11% increase since March 2015.

Cosmic rays are high-energy photons and subatomic particles accelerated in our direction by distant supernovas and other violent events in the Milky Way. Usually, cosmic rays are held at bay by the sun's magnetic field, which envelops and protects all the planets in the Solar System. But the sun's magnetic shield is weakening as the solar cycle shifts from Solar Max to Solar Minimum. As the sunspot cycle goes down, cosmic rays go up.

The sensors we send to the stratosphere measure X-rays and gamma-rays which are produced by the crash of primary cosmic rays into Earth's atmosphere. In this way we are able to track increasing levels of radiation. The increase is expected to continue for years to come as solar activity plunges toward a deep Solar Minimum in 2019-2020.

Recently, we have expanded the scope of our measurements beyond California with launch sites in three continents: North America, South America and soon above the Arctic Circle in Europe. This Intercontinental Space Weather Balloon Network will allow us to probe the variable protection we receive from Earth's magnetic field and atmosphere as a function of location around the globe.

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## Locky Ransomware Spreads Through Facebook Messenger

**Locky Ransomware Maneuvers Past Facebook Security**

Locky ransomware has wormed its way past the security features of Facebook Messenger. The malware is currently being spread by a malicious image link being sent through the messaging feature of the popular social media platform. Reports suggest Facebook is working to fix the issue.

This all started with an image download being sent. Upon clicking on the image download, users are taken to a website that looks like YouTube. From there, users are prompted to download a malicious extension in Google Chrome. According to Neowin, this malicious extension has been removed.

However, the problems don't stop there. According to Peter Kruse, a colleague of the individual who originally found the malicious content, in certain instances the file also included the ransomware variant, Locky through the use of a Nemucod downloader.

"This sounds like a typical downloader, similar to one that would run in a word macro. The downloader installs with JavaScript. Then it reaches out to a command and control server and downloads the Locky exe and executes it.

## Maybe a Solar Minimum Can Be Too Deep for 160 Meters

Propagation observer Carl Luetzelschwab, K9LA, recently offered some "deep thoughts" on the Top Band Reflector. As he explained, while less geomagnetic field activity heading into winter bodes favorable 160-meter propagation, more galactic cosmic rays entering our atmosphere could become a factor.

"The Sun's magnetic field is weakening, probably to the lowest levels in our lifetimes," Luetzelschwab said. "With a weak solar magnetic field, more galactic cosmic rays will be able to get into Earth's atmosphere. We are now seeing unprecedented high neutron counts (neutrons are one of the byproducts of cosmic rays). Since galactic cosmic rays are mostly *very energetic* protons, they can get down to low atmospheric altitudes, causing collisional ionization in the D region and lower E region."

He said a cursory estimate using cosmic ray ionization rates confirms greater ionization in the lower atmosphere, and 160 meters is not too tolerant of more absorption.

"Many of us think that 'solar min is solar min is solar min,'" Luetzelschwab said in his post, "but maybe a solar minimum can be too deep for 160 meters." He said a good question to ask in the early 2020s may be, "How was 160 meters?" — *Thanks to the ARRL Contest Update*

## Conductor Migration

Conductor Migration occurs when the center conductor of a coaxial cable moves away from the desired centered position in the cable geometry. Certain types or qualities of coaxial cable or coaxial connectors can fail to maintain a consistent distance between the inner conductor and the outer shield when subject to mechanical and/or thermal stresses beyond their design ratings.

Beyond presenting non-uniform impedance, should the center conductor actually touch the shield, an arc or short could occur. Good practice in using coaxial cable includes paying attention to minimum bend radius specifications, and avoiding foam-filled insulation types for physically demanding applications.

For long service life, use good-quality coaxial connectors - some very inexpensive connectors have been found to use plastics that can melt or deform even while soldering.

**NET CONTROL OPERATORS**

**1st week of month-Jerry , KJ6SCC**
**2nd week of month-Marcus , KI6WDX**
**3rd week of month-Chris , KD7TQO**
**4th week of month-Brian , KK6BXP**
**On months with 5 weeks-Hewitt, K6HEW**

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## Merriment on Main

It was a clear and frigid evening as Vacaville's holiday season got off to a resounding start with the 34th annual tree lighting ceremony. Thousands of people filled the closed off downtown streets to enjoy the entertainment and booths set up by groups from throughout the area.

Joining the thousands, was a group of 22 amateur radio operators and their guests who were there not only to enjoy the event, but also to report any problems they observed. The hams were given a nice red "Merriment on Main" sweatshirt and were wearing a bright yellow reflective vest that made them easy to spot in the crowd. They were also given a map of the area and lists of porta-potty and entertainment locations. Thus equipped, they were able to answer many of the visitor's questions.

As in years past, there were only a few serious problems. There was one lost child who was quickly united with his mother and two incidents that required police involvement. Unfortunately, the net frequency experienced interference from someone keying up on the frequency without saying anything. There has been some minor interference of this type in past years, but this year interference occurred throughout the evening and negatively affected our ability to communicate key information. Ways to minimize the effect of the interference have been proposed and will be refined and implemented next year.

The following hams plus their guests were this year's net participants:

**Tom Ansley, KM6BCT; Art Aronsen, WD6BQX; Vincent Bartning, KK6YRA; Jason Fiori, KM6FAK; Barry Fraser, KM6FNA; Frank Garay, KJ6RWQ; Ruff Gunn, K6DME; Brian Hagen, KK6BXP; Powell Helems, KK6YVV; Bob Hewitt, K6HEW; Chris Jones, KD7TQO; Dean Lamp, WA6NBU; Arthur Miller, KI6UXE; Mark Phillips, KK6ZDC; Cyndi Pilgrim, KK6NGZ; Murray Sobel, KM6APK; Dan Speck, WB6SIU; Bryan Steinberg, KB0A; Mike Vieira, W6MAV; Diane Vieira, K6LAZ; Kim Ware, KI6JNX; Joe Wheeler, KK6UEM.**

**A big pat on the back and thank you to all.**

**Bob Hewett, K6HEW**

## After Action Report

### Merriment on Main 2016

We started recruiting for the event at our October meeting. By the end of the November meeting 29 people had signed up. Recruiting was stopped at this point. The 29 who had signed up were considered participants. There was never a need to involve nonparticipants with event details. The participants were sent 2 emails with details of the event such as time, place and frequencies. They were also sent a reminder the Monday before the event.

Of the 29 who signed up, 22 actually appeared. This is far more than what we've had in the past and presented us with some challenges and some opportunities. One of the things we should do if we have a large group next year is to have at least 2 people at Headquarters throughout the event.

There should be an experienced ham at Headquarters at the beginning of the event to help participants set up their radios on net frequencies. This person can be assigned to a post with the outside group once everyone's radios have been setup.

This year, we experienced a lot more interference from unmodulated carriers on the net frequency. Some of this could be accidental, but the amount and timing this year points to some of it being deliberate. In any case, there are steps that we can take to minimize its effect.

**1. Have a second frequency that can be used for passing vital information. Net Control can monitor this frequency throughout the event. Have all participants monitor just the primary frequency, but have them go to the second frequency to pass traffic if the primary is occupied.**

**2. With a large number of participants, we can have a second net for roving operators. These operators can be scatted through the area and dispatched to problem areas as needed. The second net can use a 70cm frequency for their operations.**

In years past, net participants were assigned to a specified area. They stayed in this area for a large portion of the event. With the luxury of a large number of participants, this no longer needs to the case. We can insure that all participants have a chance to roam the event while it's in full operations by having rovers swap places with the stationary

**Bob Hewett, K6HEW**

## VVRC Net Plus Schedule 2016

| Month | Date | Band | Freq | Mode |
|---|---|---|---|---|
| Dec | 6 | 80m | 3.985 | LSB |
| | 13 | 73cm | 446.000 | FM Simplex |
| | 20 | 2m | 146.520 | FM Simplex |
| | 27 | 10m | 28.400 | USB |

**Thank goodness the newsletter is done. It's getting warm in my Hamshack!!**

**PLEASE RENEW YOUR MEMBERSHIP**

# VACA VALLEY RADIO CLUB, INC.

## MEMBERSHIP APPLICATION / RENEWAL FORM

Please Print & Fill in Completely — July 2016 — Dues are payable annually

FCC Name: _____ Call Sign_____
Name Badge Name:_____
Street: _____
City: _____Zip: _____
Phone: (_____) _____-_____OK to Publish ?(_____)
License Class: _____ ARRL Memeber ?(_____)
E-Mail Address_____
**FAMILY Member (Spouse or Children)**
Name: _____ Call Sign_____
License Class: _____ARRL Memeber ?(_____)
Name: _____ Call Sign_____
License Class: _____ARRL Memeber ?(_____)
Name: _____ Call Sign_____
License Class: _____ARRL Memeber ?(_____)

MEMBER Dues --------- $25.00 _____
Each Family Member -- $ 2.00 _____
Student ---------- $ 5.00 _____
Repeater donation ---------- _____

Total---------- _____
Paid by CASH: ____ Check #_____
DATE:_____

Mail to : Vaca Valley Radio Club, PO Box 143, Elmira, CA 95625-0143